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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/453,055	12/02/1999	EIKATSU YAMAGUCHI	32405WO27	2115

7590

10/04/2002

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EXAMINER

AFTERGUT, JEFF H

ART UNIT

PAPER NUMBER

1733

DATE MAILED: 10/04/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/453,055

Applicant(s)

YAMAGUCHI ET AL.

Examiner

Jeff H. Aftergut

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 August 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2, 10 and 16-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2, 10, and 16-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

Claim Numbering

1. Claims 20-24 of the amendment have been renumbered to 19-23, respectively, as set out in 37 CFR 1.126. The applicant is advised that the amendment in claim numbering skipped claim 19 and therefore the claims have been renumbered. The dependency of the claims has also been corrected to correspond to the dependency desired by applicant.

Claim Rejections - 35 USC § 102/103

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 19 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Cundiff.

Cundiff et al taught a process for forming a honeycomb sandwich composite panel comprising the steps of stacking dry fabric 18a, 18b on both sides of a honeycomb core 12 with a thermosetting sealing material (14a, 16a, 14b, 16b) having an adhesive property there between, heating the assembly at the curing temperature of the sealing material (the adhesive films 14a and 14b as well as the prepreg material 16a and 16b) to cause the sealing material to harden, see column 4, lines 4-8 and column 8, lines 64-column 9, line 7, for example, impregnating the dry

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fabric with a thermosetting resin, see column 4, lines 8-11 and column 9, lines 8-22, and curing the resin of the resin impregnated dry fabric by hot pressing the entire assembly, see column 4, lines 11-14, column 9, lines 23-30. The reference taught the regulation of the temperature during the processing in order to allow for the curing of the resin of the film and the prepreg layer and varied (reduced) the same prior to introduction of the impregnating resin for the dry fiber on the exterior of the assembly in the resin transfer molding operation. The reference failed to make mention of the use a sealing material, however the ultimate purpose of the resin layers 14a, 14b as well as the prepreg layers 16a and 16b was to seal off the core such that the core remained hollow after the RTM operation. It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the adhesive film and prepreg layers to seal the core to prevent resin intrusion into the same in the process of making a honeycomb core panel wherein the same included the attachment of a dry fiber layer onto the exterior of the core followed by the impregnation of the dry layers with RTM as suggested by Cundiff et al. Note that the use of pressure during the RTM operation was intrinsic in the RTM operation and one skilled in the art would have understood the same as being conventional in the art. Cundiff clearly suggested that multiple layers would have been stacked (for example sealing resin film 14a and uncured prepreg 16a on at least one side of the honeycomb in order to effect the sealing of the material prior to RTM with the dry fabric layers.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

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6. Claims 2, 10, 16-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cundiff et al in view of Lubin (the portion of the "Handbook of Composites"), Fellman et al, Ahrens et al and Browne et al and E.P. 588,436 for the same reasons as expressed in paper no. 13, paragraph 2.

The applicant is advised that the reference to E.P. '436 made it clear that those skilled in the art at the time the invention was made would have incorporated syntactic foam resin film layers in place of prepreg layers in composite manufacture and additionally suggested that such would have included the assembly of the syntactic resin film layers adjacent a honeycomb layer. The applicant is additionally advised that the particular temperatures for the curing of the resin of the plies used in the sealing operation would have been determined through routine experimentation and such was dependent upon the specific resins selected for the operations. Additionally, note that the reference to E.P. '436 suggested a three layer structure as useful in composite manufacture wherein the same included a prepreg layer, a syntactic foam resin layer and a nonwoven fabric layer impregnated with resin therein. One skilled in the art would have appreciated that the use of the same instead of the prepreg and resin film layer of Cundiff would have improved the impact resistance of the finished assembly as the syntactic foam layers were known to have been useful in place of the prepreg layers alone. Additionally, the reference to Browne suggested the incorporation of a carrier material with the syntactic foam layers (a scrim layer).

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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8. Claims 19-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 19, line 8, the word "say" appears. The language of the claim is not clear and concise and it is not clear what was intended by applicant here. Additionally, the language of lines 6-9 of the claim is not deemed clear and concise with regard to the resin and curing operation. When does applicant impregnate the dry fabric layers in the claim. It is believed that applicant should clarify in a clear and concise fashion that one cured the sealing layers then one injected the resin into the dry fabric layers followed by the curing of the injected resin.

Response to Arguments

9. Applicant's arguments filed 8-29-02 have been fully considered but they are not persuasive.

The applicant essentially argues that the references failed to teach that one would have only employed the sealing material which included the resin and glass microspheres therein as the sealing material and that the combination of Lubin and Cundiff clearly suggested that one would have utilized a prepreg layer as the sealing layer which prepreg layer included glass fibers as opposed to glass microspheres therein. The applicant argues that the claims as presented exclude the use of the prepreg layers as the claims "consist essentially of" the specified layers. The applicant is advised that claim 19 as presented does not specify what the sealing layers are and as such it is not clear that the sealing layers employed were formed only of glass microspheres and resin. Thus the applicant's argument is not commensurate in scope with claim 19 inasmuch as the claim does not exclude the use of a prepreg layers for the sealing material.

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The applicant is advised that the use of syntactic foam in place of the prepreg layer in Cundiff would have been performed for the reasons previously identified. The incorporation of the resin layers with the microspheres therein increases the stiffness of the resulting product with a reduction in the cost of the finished assembly. One skilled in the art would have readily appreciated the desirability of substituting the composite prepreg layers of Cundiff with a syntactic foam layer in the manufacture of the honeycomb material. It should be recognized the E.P. '436 clearly suggested the substitution in combination with honeycomb layers. Certainly, then the sealing layers of the references would have included the use of a syntactic foam layer instead of a prepreg layer.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff H. Aftergut whose telephone number is 703-308-2069. The examiner can normally be reached on Monday-Friday 6:30-3:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael W. Ball can be reached on 703-308-2058. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.


Jeff H. Aftergut
Primary Examiner
Art Unit 1733

JHA
October 3, 2002